WHAT IS CLAIMED IS:

1. A communication apparatus which is connected to a communication network and, via said communication network, communicates packets including sequence numbers and data to be transmitted, said packet transfer communication apparatus comprising:

reception means for receiving packets from said communication network;

extraction means for extracting the sequence numbers and the data to be transmitted from the packets received by said reception means, in such a manner that the sequence numbers are consecutive or discontinuous;

storage means for storing the sequence number of the packet until the packet whose sequence number lies between said discontinuous sequence numbers have been received, or during a specific period of time; and

rearrangement means for rearranging the received data including the data in the newly received packet and the data in the previously received packets on the basis of the sequence number of the new packet extracted by said extraction means and the sequence numbers stored in said storage means.

2. The packet transfer communication apparatus according to claim 1, wherein said storage means stores the missing sequence number between said discontinuous sequence numbers.

3. The packet transfer communication apparatus

according to claim 1, wherein

said rearrangement means includes

means for comparing the sequence number extracted by said extraction means with the sequence numbers stored in said storage means and thereby judging whether the order in which the packets were received is correct or not,

means for, if the result of the comparison showed that the order in which the packets were received is incorrect, forming a list of the sequence numbers of the packets likely to be received in future, and

means for, when said reception means has received a new packet within a specific period of time, inserting new data having a sequence number in said list into a suitable position so that the new data may be arranged in the stream of the received data in the order of sequence numbers.

4. The packet transfer communication apparatus according to claim 3, further comprising means for deleting the corresponding sequence number from said list after said specific period of time has elapsed.

5. A packet transfer communication method in a packet transfer communication apparatus which is connected to a communication network and, via said communication network, communicates packets including sequence numbers and data to be transmitted, said packet transfer communication method comprising:

the step of receiving packets from said communication network;

the step of extracting the sequence numbers and the data to be transmitted from the packets received in the receiving step, in such a manner that the sequence numbers are consecutive or discontinuous;

the step of storing the sequence number of the packet until the packet whose sequence number lies between said discontinuous sequence numbers have been received, or during a specific period of time; and

a rearrangement step of rearranging the received data including the data in the newly received packet and the data in the previously received packets on the basis of the sequence number of the new packet extracted in said extracting step and the sequence number stored in said storing step.

6. The packet transfer communication method according to claim 5, wherein said storing step stores the missing sequence number between said discontinuous sequence numbers.

7. The packet transfer communication method according to claim 5, wherein

said rearrangement step includes

the step of comparing the sequence number extracted in said extracting step with the sequence numbers stored in said storing step and thereby judging whether the order in which the packets were received is

correct or not,

the step of, if the result of the comparison showed that the order in which the packets were received is incorrect, forming a list of the sequence numbers of the packets likely to be received in future, and

the step of, when said receiving step has received a new packet within a specific period of time, inserting new data having a sequence number in said list into a suitable position so that the new data may be arranged in the stream of the received data in the order of sequence numbers.

8. The packet transfer communication method according to claim 7, further comprising the step of deleting the corresponding sequence number from said list after said specific period of time has elapsed.

9. A storage medium which stores a program for operating a packet transfer communication apparatus or a computer connected to a communication network, said storage medium

causing said packet transfer communication apparatus or computer to receive packets from said communication network,

causing the data to be transmitted and the sequence numbers given to the packets in packet transmission to be extracted consecutively or discontinuously from the received packet,

causing the sequence number of the packet until the packet whose sequence number lies between said discontinuous sequence numbers have been received or during a specific period of time, and

storing a program for rearranging the received data including the data in the newly received packet and the data in the previously received packets on the basis of the sequence number of the newly extracted packet and the stored sequence numbers, in such a manner that said packet transfer communication apparatus or computer can read the program.

10. The storage medium according to claim 9, wherein said program causes the missing sequence number between said discontinuous sequence numbers to be stored.

11. The storage medium according to claim 9, wherein

said rearrangement program

compares said extracted sequence number with the sequence numbers stored in said storing step and thereby judges whether the order in which the packets were received is correct or not, and

if the result of the comparison showed that the order in which the packets were received is incorrect, causes a list of the sequence numbers of the packets likely to be received in future to be formed, and

when a new packet has been received within

a specific period of time, inserts new data having a sequence number in said list into a suitable position so that the new data may be arranged in the stream of the received data in the order of sequence numbers.

12. The storage medium according to claim 11, wherein said program causes the corresponding sequence number to be deleted from said list after said specific period of time has elapsed.